UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,812	10/24/2000	Galen C. Hunt	MS1-547US	4273

22801 7590 01/28/2005		EXAMINER
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ART UNIT	PAPER NUMBER
2144	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/695,812	HUNT ET AL.
	Examiner	Art Unit
	Michael S. A. Delgado	2144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _24 October 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-25 and 73-75_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-25 and 73-75_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _24 October 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _8/2/04 , 11/21/03 , 5/21/04 2/2/04_

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-8, 10-12, 14-19, 21-23 and 73-75 are rejected under 35 U.S.C. 102(e) as being

anticipated by US 6,801,937 by Novaes et al .

In claim 1, Novaes teaches about a multi-tiered management architecture comprising

(Fig 1):

an application development tier "Resource Manager Component" at which applications

are developed for execution on one or more computers (Col 6, lines 30-40);

an application operations tier "Group Service Component" at which execution of the

applications is managed (Col 6, lines 19-30); and

a cluster operations tier "Distributed Configuration Manager" to manage the operation of

the computers without concern for what applications are executing on the one or more computers

(Col 5, lines 15-25) (Col 5, lines 35-45).

In claim 2, Novaes teaches about a management architecture as recited in claim 1,
wherein the cluster, operations tier is responsible for securing a computer cluster boundary to
prevent a plurality of other computers that are not part of the computer cluster from, accessing
the one or more computers in the computer cluster (Col 8, lines 50-60) (Col 9, lines 10-15). The
unique identifier prevent outside clients from accessing the cluster in question.

In claim 3, Novaes teaches about a management architecture as recited in claim 1,
wherein the application operations tier is responsible for securing sub-boundaries "grouping"
within the computer cluster boundary to restrict communication between computers within the
computer cluster (Col 6, lines 19-30).

In claim 4, Novaes teaches about a management architecture as recited in claim 1;
wherein the application operations tier is implemented at an application operations management
console at a location remote from the one or more computers (Fig 4) (Col 4, lines 14-25). Here
the processing node can be on different computer, which include a remote computer.

In claim 5, Novaes teaches about a management architecture as recited in claim 1,
wherein the cluster operations tier is implemented at a cluster operations management console
located at the same location as the one or more computers (Fig 6) (Col 4, lines 14-25).

In claim 6, Novaes teaches about a management architecture as recited in claim 1,
wherein the application operations tier monitors execution of application processes on the one or
more computers and detects failures of the application processes (Col 6, lines 25-30) and (US 5,
748,958 Col 3, lines 15-40) incorporated by reference.

In claim 7, Novaes teaches about a management architecture as recited in claim 1, wherein the application operations tier takes corrective action in response to a software failure on one of the computers (Col 6, lines 25-30) (US 5, 748,958 Col 3, lines 15-40) incorporated by reference.

In claim 8, Novaes teaches about a management architecture as recited in claim 7, wherein the corrective action comprises re-booting the computer (Col 5, lines 40-50) (Col 7, lines 50-65) (Col 17, lines 30-40). In the situation of a software failure (lock up), the node has to be reconfigured, which is accomplished by running the bootstrap program to accomplish the task. This process is well known in the art as a software watchdog program, which requires the rebooting of the hardware in question.

In claim 10, Novaes teaches about a management architecture as recited in claim 1, wherein the cluster operations tier monitors hardware operation of the one or more computers and detects failures of the hardware (Col 6, lines 5-20) (Col 8, lines 15-20).

In claim 11, Novaes teaches about a management architecture as recited in claim 1, wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers (Col 6, lines 25-30) (Col 7, lines 55-65) (US 5, 748,958 Col 3, lines 15-40) incorporated by reference. Software depends on hardware, therefore a failure in hardware result in a failure in software. The recovery process of the Group Service component provides the corrective action need to recover from a hardware failure.

In claim 12, Novaes teaches about a management architecture as recited in claim 11, wherein the corrective action comprises re-booting the computer (Col 5, lines 40-50) (Col 7, lines 55-65) (Col 17, lines 30-40).

In claim 14, Novaes teaches about a management architecture as recited in claim 11, wherein the one or more computers are situated in one or more clusters at a co-location facility (Fig 1).

In claim 15, Novaes teaches about a co-location facility system comprising (Fig 1):

a plurality of node clusters each corresponding to a different customer (Col 4, lines 55-65); and

a cluster operations management console corresponding to at least one of the node clusters and configured to manage hardware operations of the at least one node cluster (Col 5, lines 40-50).

In claim 16, Novaes teaches about a system as recited in claim 15, further comprising a different cluster operations management console corresponding to each of the plurality of node clusters (Fig 2) (Col 5, lines 15-25).

In claim 17, Novaes teaches about a system as recited in claim 15, wherein each of the plurality of node clusters includes, as its nodes, a plurality of server computers (Fig 1) (Col 3, lines 60-67) (Col 13, lines 45-60).

In claim 18, Novaes teaches about a system as recited in claim 15, wherein the hardware operations include one or more of mass storage device operation, memory device operation, and network interface operation, and processor operation (Fig 11) (Col 3, lines 35-45).

In claim 19, Novaes teaches about a system as recited in claim 15, wherein each of the plurality of node clusters includes a plurality of nodes configured to receive node control commands from an application operations management console located remotely from the co-location facility (Fig 4) (Col 4, lines 10-25) (Col 5, lines 15-25).

In claim 21, Novaes teaches about a system as recited in claim 15, further comprising a data transport medium "LAN" coupled to each node in the plurality of clusters via which each node can access an external network (Col 3, line 65- Col 4, line 10)

In claim 22, Novaes teaches about a system as recited in claim 15, wherein the external network comprises the Internet. (Col 4, lines 1-10) (Col 21, lines 1-10)

In claim 23, Novaes teaches about a system as recited in claim 15, wherein each node in each node cluster is configured with the boundary of the node cluster (Col 4, lines 55-65).

In claim 25, Novaes teaches about a system as recited in claim 15, wherein one or more

of the nodes in a node cluster are leased "negotiated" by the customer from an operator of the co-

location facility (Col 3, lines 35-50).

In claim 73, Novaes teaches about a multi-tiered computer management architecture

comprising (Fig 4) (Col 4, lines 10-25):

a first tier corresponding to an owner of a computer (Fig 4, operating system instance);

a second tier corresponding to a hardware operator that is to manage hardware operations

of the computer (Fig 4, DCM Process);

a third tier corresponding to a software operator that is to manage software operations of

the computer (Fig 4, Group Service Process); and

a fourth tier corresponding to the owner, wherein the owner operates in the fourth tier

except when revoking the rights of the hardware operator or software operator (Fig 4, Resource

Manager Process).

In claim 74, Novaes teaches about an architecture as recited in claim 73, wherein the

second tier management is implemented at a management console at a location remote from the

computer (Col 4, lines 10-25). The modularity of the approach allows the each of the tiers to

operate without the restriction of location.

In claim 75, Novaes teaches about a architecture as recited in claim 73, wherein the third

tier management is implemented at a management console at a location remote from the

computer (Col 4, lines 10-25). The modularity of the approach allows the each of the tiers to

operate without the restriction of location.

In claim 76, Novaes teaches about an architecture as recited in claim 73, further

comprising using a plurality key pairs, each key pair including a private key and a public key, to

securely communicate between the computer and a management device corresponding to the

hardware operator, as well as between the computer and a management device corresponding to

the software operator.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US

6,801,937 by Novaes et al in view of US 6,801,937 by Hipp.

In claim 9, Novaes teaches all the limitation but does not explicitly teach about notifying

an administrator that a failure has occurred.

In Hipp invention a management architecture "remote management system 70" as recited

in claim 7, wherein the corrective action comprises notifying "sound an alarm" an administrator

of the failure (Col 22, lines 55-65).

The administrator of a network is most knowledgeable about the operation of a network that he or she is in charge of, and in the case of a failure, possesses the skill that is needed to fix the problem. Down time in a network has to be kept to a minimum and in order to satisfy this requirement it is wise to notify the person that is most knowledgeable and capable of fixing the problem.

It would have been obvious at the time of the invention for some one of ordinary skill to send a notification of a failure to an administrator in order that the problem can be remedy in the shortest time possible.

In claim 13, Novaes teaches about a management architecture as recited in claim 11, wherein the corrective action comprises notifying a co-location facility administrator (Covered in claim 9).

Claims 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,801,937 by Novaes et al in view of US 6,529,953 by Van Renesse

In claim 20, Novaes teaches all the limitation but does not explicitly teach about using private and public key to support tunneling.

Van Renesse teaches about a system as recited in claim 19, wherein each node in each node cluster "all the node that stores MIBs" is configured with a private key that allows the node to decrypt communications that are received, in a form encrypted using a public key, from the application operations management console "authorized nodes that maintain the MIB" associated with the customer that corresponds to the node cluster (Col 7, lines 34-45) (Col 7, lines 50-60).

In applicant invention different clusters belonging to different users are located on the same physical storage. To prevent the unauthorized use of a cluster out side the assigned group, a system of tunneling using private and public keys for encryption and decryption is used. Unauthorized user if given access can corrupt the clusters and thus render it useless. Like the applicant, Van Renesse discloses the need for security to prevent important storage spaces (MIB storages like applicant's clusters) from being access by interloper. The success in maintaining group state of Novaes invention is hinged on the security that only the members of the group in question are allowed to make changes. Without this security boundary, outside entities would modify the group state, which will cause the system to crash. By adding, the additional security of public/private keys, one is better able to guarantee that only authorized members are allowed to do these critical changes.

It would have been obvious at the time of the invention for some of ordinary skill to use private and public keys system to protect the group state of Novae invention from being access and corrupted by unauthorized users.

In claim 24, a system as recited in claim 15, wherein each node in each node cluster is configured with a private key that allows the node to decrypt communications that are received in a form encrypted using a public key, from the cluster operations management console. (covered in claim 20).

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,047,325 by Jain et al, teaches about a network device for supporting construction of virtual local area networks on arbitrary local and wide area computer networks.

US 6,615,256 by Van Ingenet al, teaches about a quorum resource arbiter within a storage network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. A. Delgado whose telephone number is (571) 272-3926. The examiner can normally be reached on 7.30 AM - 5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM A CUCHLINSKI JR can be reached on (571) 272-3925

. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MD

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